

Ultrafine Modified Aluminum Hydroxide and Its Preparation

Abstract

A method of preparing ultrafine modified aluminum hydroxide, having two steps: a carbon component decomposition under ultra gravity conditions in a rotating bed, and a modifying treatment. The carbon component decomposition is carried out in porous packing layer inside of a rotating bed, where the mass transfer for the reaction and micro-mixing process are extremely enhanced. The aluminum hydroxide solution (as a precipitate or a dry powder) obtained is further converted by the subsequent modified treatment process. This method can control the particle size of the modified aluminum hydroxide crystal grains, homogenize its distribution, and shorten the reaction time. Particularly, the modified treatment greatly improves its weight loss temperature and weight loss ratio. The use field of the resulting aluminum hydroxide as a flame retardant and other is expanded. The average size of modified aluminum hydroxide grain obtained is from 50 nm to several micrometers, and can be controlled. Its grain size can be homogeneously distributed and nano-graded. The mechanical

properties of polymers containing the ultrafine modified aluminum hydroxide are improved. The process of the present invention can be conveniently used in industries and can improve productivity and the product grade.